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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,683	02/19/2004	Mark Julian Russell	282559US8X	5248

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

KRASNIC, BERNARD

ART UNIT	PAPER NUMBER
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2624

NOTIFICATION DATE	DELIVERY MODE
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08/19/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/782,683	Applicant(s) RUSSELL ET AL.	
	Examiner BERNARD KRASNIC	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/13/2008 has been entered.

2. The application has pending claim(s) 1-10.

3. In response to the Request for Continued Examination filed on 6/13/2008:

The "Objections to the claims" have been entered and therefore the Examiner withdraws the objections to the claims.

4. Applicant's arguments with respect to claim(s) 1-10 have been considered but are moot in view of the new ground(s) of rejection because of the Request for Continued Examination (RCE).

5. Applicant's arguments filed 6/13/2008 have been fully considered but they are not persuasive.

The Applicant alleges, "In response to the rejection of Claims 1-10 ..." in page 6 through "Amended independent Claims 9 and 10 recite ..." in page 9, and states

respectively that the prior art reference Rai does not disclose the amended limitations because the color correction applied in Rai by a current block is independent from the degree of color correction applied by a previous block and therefore doesn't address the problem of how to reduce color artifacts in portions of images that have been previously been color corrected. However the Examiner disagrees because Rai discloses the two color correction processes 1234 [T-Matrix multiplier array] and 1230 [alpha mixer], wherein the T-Matrix multiplier array process 1234 produces an unqualified corrected value [R',G',B'] which acts as an input to the alpha mixer process 1230 which finalizes the color correction to an extent dependent on a degree / α by which the first color correction was applied (see Rai, Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127], the two color correction processes 1234 [T-Matrix multiplier array] and 1230 [alpha mixer] when applied in series produces an unprocessed color correction [$\alpha = 0$], completely processed color correction [$\alpha = 1$], and weighted color correction process [α is between 0 and 1]). Further discussions are addressed below in the prior art rejections section. Therefore claims 1-10 are still not in condition for allowance and are still not patentably distinguishable over the prior art references.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

7. Claim(s) 1 and 3-8 is/are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 1 [claims 3-8 are dependent upon claim 1] defines a "digital image processing apparatus". However, the body of the claim lacks definite structure indicative of a physical apparatus.

Furthermore, the specification indicates that the invention may be embodied as pure software [see for example the Applicant's specification on page 3 at lines 18-24, the embodiments to be described below may be implemented in software]. Therefore, the claim as a whole appears to be nothing more than a "system" of software elements, thus defining functional descriptive material per se.

Functional descriptive material may be statutory if it resides on a "computer-readable medium or computer-readable memory". The claim(s) indicated above lack structure, and do not define a computer readable medium and are thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-

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readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. **The Examiner suggests:**

1. Amending the claim(s) to embody the program on “computer-readable medium” or equivalent; assuming the specification does NOT define the computer readable medium as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory; or

2. **Adding structure to the body of the claim that would clearly define a statutory apparatus.** The Examiner would like to note that claim 2 has not been rejected under 35 U.S.C. 101 because the limitation of having actual processors performing the correction processes shows that claim 2 has definite structure indicative of a physical apparatus.

Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 3-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Rai (EP 0 947 956 A2, as applied in previous Office Action).

Re Claim 1: Rai discloses a digital image processing apparatus / scene-by scene for applying pixel-based color correction / color correction to an input image (1202 or 1208 of Fig. 12) to generate an output image (1236 of Fig. 12), said apparatus comprising a color correction module (see Fig. 12) configured to apply varying degrees of color correction / weighted output color value using alpha α mixing and to provide two or more color correction processes (see Fig. 12, the two color correction processes 1234 [T-Matrix multiplier array] and 1230 [alpha mixer] when applied in series produces an unprocessed color correction [$\alpha = 0$], completely processed color correction [$\alpha = 1$], and weighted color correction process [α is between 0 and 1]) each having a respective associated locus / correction zone [outside color correction zone, inside color correction zone, and the transition zone] in a color space and a respective associated color mapping operation / no mapping, complete mapping, weighted mapping (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]); said two or more color correction processes / the two processes 1234 [T-Matrix multiplier array] and 1230 [alpha mixer] being sequential / series (see Fig. 12, 1234 and 1230 are in series) so that results of a color correction process form an input to a next such process in said sequence (see Fig. 12, the T-Matrix multiplier array process 1234 produces an unqualified corrected value [R',G',B'] which acts as an input to the alpha mixer process 1230); each of said two or more color correction processes detects whether each pixel

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lies within said respective locus / color correction zone in color space and, if so / inside color correction zone or in transition zone, applies said color mapping operation / color correction mapping (completely processed color correction [$\alpha = 1$], and weighted color correction process [α is between 0 and 1]) to the pixel (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]), wherein once a first color correction process (see Fig. 12, the first process is 1234 [T-Matrix multiplier array]) is performed on a particular pixel, each additional color correction process (see Fig. 12, the second process in sequence is 1230 [alpha mixer]) of said two or more color correction processes with respect to the particular pixel is limited to an extent dependent (the alpha mixer process is dependent upon 1234's [R',G',B'] output) on a degree / α [the variable α acts as the degree] by which the first color correction process was applied thereby inhibiting color mapping / color correction mapping (completely processed color correction [$\alpha = 1$], and weighted color correction process [α is between 0 and 1]) in respect of loci associated with the first color correction process (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

Re Claim 3: Rai further discloses said locus in color space of at least one of said color correction processes includes a soft region / transition zone, said soft region being subject to a partial color mapping operation / weighted mapping (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

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Re Claim 4: Rai further discloses said color mapping operation of a subsequent process having a locus / zone in color space overlapping with said soft region is only partially inhibited / transition zone in a region overlapping said soft region (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

Re Claim 5: Rai further discloses a degree of softness in a locus in color space may vary between a first degree of softness / outside the zone meaning alpha mixing is 0% [$\alpha = 0$], being indicative that no color mapping will take place / no color correction processing, and a second degree of softness / inside the zone meaning alpha mixing is 100% [$\alpha = 1$], being indicative that complete color mapping will take place / completely processed color correction (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

Re Claim 6: Rai further discloses color mapping by a color correction process is partially inhibited / transition zone in respect of a region in color space in which a sum of all degrees / alpha mixing with output color value of softness relating to that region in previous processes in said sequence lies between said first / outside the zone meaning alpha mixing is 0% [$\alpha = 0$] and second / inside the zone meaning alpha mixing is 100% [$\alpha = 1$] degrees of softness (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

Re Claim 7: Rai further discloses color mapping in a process will be completely inhibited / inside the zone in respect of a region in color space in which said sum of all degrees / alpha mixing with output color value of softness relating to that region in previous processes equals or exceeds said second degree / inside the zone meaning alpha mixing is 100% of softness (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

Re Claim 8: Rai further discloses each process is operable to detect a running total degree / alpha mixing with output color value of softness applied by preceding processes in respect of each position in color space, and to apply color correction to an extent / the extent being completely processed color correction no greater than a difference between said running total degree / alpha mixing with output color value of softness and said second degree / inside the zone meaning alpha mixing is 100% of softness (see Fig. 12, col. 10 at lines 18-35, col. 37 at lines 42-50, Fig. 13B, [0127]).

As to claim 9, the claim is the corresponding method claim to claim 1 respectively. The discussions are addressed with regard to claim 1.

As to claims 10, the claim is the corresponding computer readable medium encoded with computer instructions claim to claim 9 respectively. The discussions are addressed with regard to claim 9.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rai in view of Florent et al (US 2003/0026505 A1). The teachings of Rai have been discussed above.

Re Claim 2: Rai further discloses that the two separate color correction process circuits 1234 [T-Matrix multiplier array] and 1230 [alpha mixer] can be implemented using programmable logic units (see Fig. 12, [0128]-[0129]).

However, Rai fails to specifically suggest that the separate color correction processes are carried out by separate color correction processors.

Florent discloses each of said processes is carried out by a separate processor (see Fig. 1A, [0001], [0023] at lines 4-12, [0024] at lines 21-30, [0030] at lines 1-13, [0031] at lines 1-7, the image transport engine performs the deployment of one or several algorithmic chain(s) of processing functions on said multiprocessor platform, each of the processor computing units MOD1 – MOD2 are loaded and attached with a processing function).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rai's apparatus using Florent's teachings by replacing each color correction process circuitry with a programmable logic unit

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processor MOD in order to be efficient in transfer and latency (see Florent, [0011] at lines 5-6).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624
Bernard Krasnic

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